

# THE WESTERN AUSTRALIAN NATURALIST



Vol. 25

28th February 2007

No. 4

## THE NON-VOLANT VERTEBRATE FAUNA OF THE BURRUP PENINSULA, PILBARA, WESTERN AUSTRALIA

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### ABSTRACT

This paper summarises current knowledge of the non-volant vertebrate fauna of the Burrup Peninsula. A total of 17 species of mammal (including three introduced species), 61 reptiles and 2 frogs are known to occur on the Burrup Peninsula, although the total for reptiles is probably incomplete.

The geographical feature now known as the Burrup Peninsula was originally an island, but is now connected to the mainland by numerous bunds, roads and railways. The Burrup Peninsula contains the largest terrestrial vertebrate fauna recorded from any island off the Pilbara coast, probably due to its relatively large size, its semi-island character (lying close to the mainland, connected by mudflats and industrial infrastructure), and a relatively high level of topographical and habitat diversity.

### INTRODUCTION

The non-volant vertebrate fauna of the Burrup Peninsula is composed of a subset of species typical of the western Pilbara coast and hinterland. The island character of the Peninsula has

meant that for most groups, some species found on the nearby mainland appear to be absent. However, several features of the Burrup minimise this trend. Firstly, the Burrup is relatively large (approximately

15,000 hectares). Second, although essentially an island (it was originally known as Dampier Island, S. Szabo pers. comm.), the Burrup retained a land connection with the mainland across supra-tidal mud flats to the south, potentially allowing for both invasions and reinvasions in the event of local extinction. These supra-tidal flats were traversable by terrestrial animals, although they were over two kilometres wide at their narrowest point and were episodically flooded by extreme tides, storm surge or heavy rainfall. Third, the Peninsula has a complex and diverse topography, containing a wide variety of habitat types. Diversity of habitat and complexity of topography encourages and supports fauna diversity, and protects the area from being uniformly affected by events such as large fires.

#### HISTORY OF ZOOLOGICAL COLLECTIONS

The earliest scientific collections of vertebrate fauna made from the vicinity of the Burrup Peninsula were in 1961. A WA Museum expedition to the Dampier Archipelago made collections from various islands of the archipelago, but none from the Burrup Peninsula itself, then known as Dampier Island (G. W. Kendrick, field note books, August 1961). More extensive collections from the Dampier Archipelago were made by a

combined WA Museum and Department of Fisheries and Wildlife expedition in 1962 (reported in Burbidge and Prince 1972). Again, no collections were made from the Burrup Peninsula itself.

Occasional specimens from the Burrup Peninsula and nearby islands were presented to the WA Museum during the late 1960's, once iron ore export facilities and the town of Dampier were established. The next phase of scientific collection of the fauna began with Burbidge and Prince (1972), who visited islands of the Dampier Archipelago (including Dolphin Island), again without examining the Burrup.

In the late 1970's, the North West Shelf natural gas project was proposed on a site on Withnell Bay, on the west coast of the Burrup Peninsula. Environmental investigations began in 1978 (Woodside Offshore Petroleum 1979), reporting the results of Tingay and Tingay (1979), who undertook survey work during August and September 1978.

Following construction of the gas processing facility at Withnell Bay, various other fauna survey and monitoring studies were commissioned by Woodside Offshore Petroleum, including Butler and Butler (1983), Dinara (1990, 1993), and Woodside Offshore Petroleum (1994, 1997). These reports were summarised in Woodside Offshore Petroleum (1998).

Apart from the very earliest

surveys (Tingay and Tingay 1979), almost all of the biological survey work reported by industry was concentrated upon areas held under industrial lease by the North West Shelf proponents. Given the high level of industrial development expected to occur on the Burrup Peninsula during the 1990's, it was considered that a more comprehensive survey of the fauna of the Peninsula was warranted. Since 1998, several industrial development proposals have been assessed for sites on the Burrup Peninsula. Where vertebrate survey data are available from these studies, they are also included in this paper.

## STUDY AREA

The Burrup Peninsula lies on the coast of the west Pilbara, Western Australia (Figure 1). Before the development of the town of Dampier and its associated iron ore and salt industry infrastructure, the Burrup Peninsula was an island isolated from the mainland by over two kilometres of inter-tidal and supra-tidal mud flats. Connection to the mainland is now established by road and rail infrastructure corridors, and by an extensive network of bunds constructed for the Dampier Salt solar evaporation ponds.

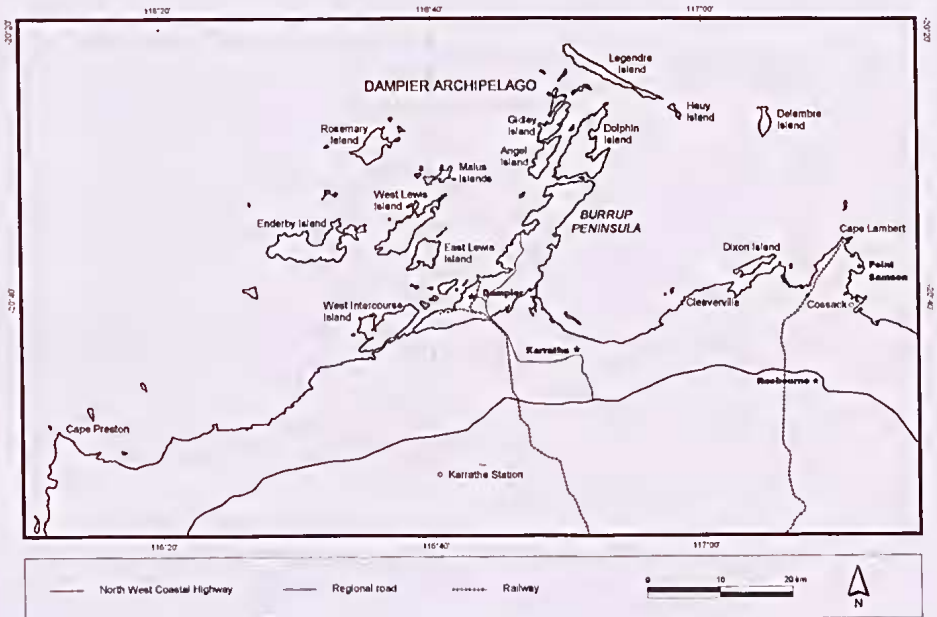


Figure 1. Showing the setting of the Burrup Peninsula, in relation to the islands of the Dampier Archipelago and the adjacent mainland, and localities mentioned in the text.

## NATURAL ENVIRONMENT

The Burrup Peninsula is part of a spine of Achaean igneous rocks, primarily Fortescue Group granophyres and gabbros, with small exposures of granites, which form a large part of the islands of the eastern Dampier Archipelago, particularly Dolphin, Angel and Gidley Islands (Hickman 1997). These units are distinct from other basaltic units found in other Dampier Archipelago islands to the west. These basalts form large exposures of bare rock on both the Burrup Peninsula and the nearby islands, which have weathered to a characteristic 'rockpile' form. The rockpiles are a dominant feature of the Burrup landscape, and cover a large proportion of the land surface. In their most extreme expression, these surfaces have no plant life or soil present for hectares at a time.

Areas of granite exposure on the Burrup are usually restricted to the eastern side of the peninsula, where it underlies the gabbro member of the Gidley Granophyre. This coast rises abruptly to about 50 metres along its northern length, and more gently in the south. Detailed geology of the Burrup Peninsula is provided by Biggs (1976).

Colluvial deposits are an important landform component, despite most of the Burrup Peninsula being elevated and heavily weathered uplands.

Valley systems contain extensive colluvial deposits, typically stony clays. Aeolian sands occur close to the coast, particularly adjacent to beaches and supra-tidal flats, and are best developed along Conzinc Bay. Extensive supra-tidal mud flats extend along the southern shore of the Burrup Peninsula. Most of these flats are now inundated beneath salt evaporation ponds. However, small areas of relatively undisturbed supra-tidal communities still occur between Hearson Cove and King Bay (Figure 2), and along the margins of the salt works. Inter-tidal mud flats are well developed in sheltered embayments along both eastern and western coasts of the peninsula (northern Conzinc Bay, Hearson Cove, Cowrie Cove, Watering Cove).

Between Hearson Cove and King Bay, a low-lying expanse of supra-tidal mud flat and sand dunes, between one and two kilometres wide, separates two elevated rocky sections of the peninsula. This low-lying area would have been inundated by even minor elevations of sea level, dividing the Burrup Peninsula into two islands. While providing a present day connection between the northern and southern parts of the Burrup, the Hearson Cove – King Bay corridor may still present a barrier to gene flow for some low-mobility faunal groups. This area is now a focus for industrial development proposals.

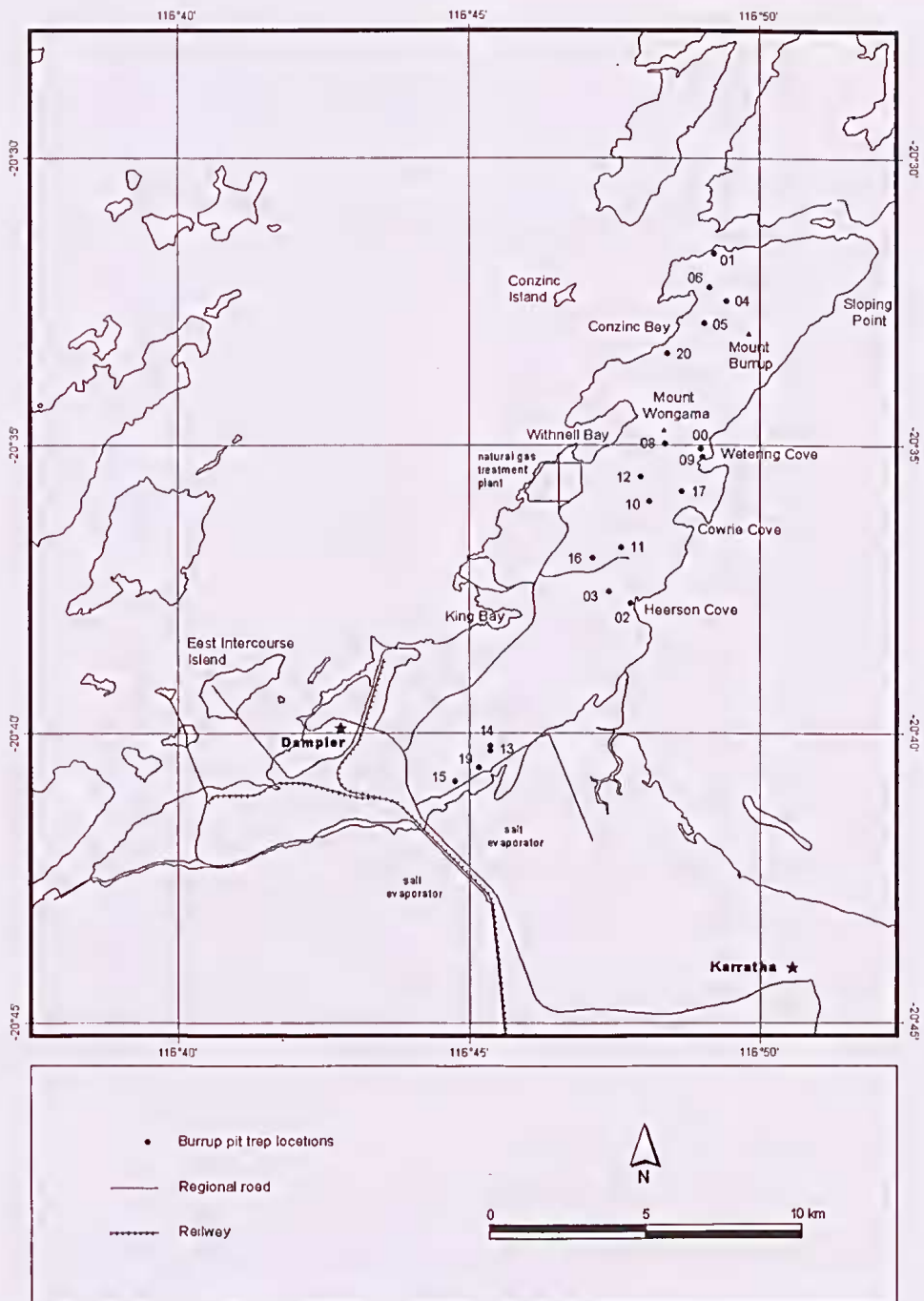


Figure 2. Showing the location of the 19 DEC fauna survey sites on the Burrup Peninsula, and localities mentioned in the text.

## SOCIAL ENVIRONMENT

The Burrup Peninsula is approximately 32 kilometres long and five kilometres wide (about 15,000 hectares). It supports the town of Dampier, several iron ore and solar salt handling and load-out facilities, and a liquefied natural gas processing and export facility. Further gas and petrochemical processing industries are proposed for locations near King Bay. The Burrup forms the eastern boundary of the Dampier Port. Industrial leases cover a significant portion of the southern and central part of the Burrup. A number of marine service industries occupy the northern shore of King Bay, including the public wharf.

The Burrup Peninsula is internationally renowned for containing very significant indigenous cultural values, particularly large numbers of sites containing engraved rock art. Many archaeological and anthropological studies have been undertaken on the Burrup, over many years, most associated with industrial proposals (Vinnicombe 1987, Veth *et al.* 1993).

The Burrup Peninsula is a significant recreation resource for the residents of Karratha and Dampier (population of approximately 15,000). Recreational boat launching facilities are provided at Dampier, Withnell Bay and Cowrie Cove. The beaches of Conzinc Bay and

Searipple Passage are significant recreation areas, as sandy beaches are scarce on the mainland. Unformed four-wheel drive tracks have been pushed into most beach locations on the Burrup, and recreational drivers have made many other tracks elsewhere on the peninsula.

## METHODS

### SURVEY SITES

Various methodologies have been used over the years to document fauna on the Burrup Peninsula. The methods described below apply to survey undertaken between 1996–98. These methods may not apply to other studies whose results are also reported here.

Nineteen vertebrate survey sites were installed within the major habitat types recognised on the peninsula (Figure 2). Because of access restrictions due to industrial leasehold, sites were not placed in the southern part of the peninsula (south or west of the Dampier access road). Table 1 outlines the location details and broad landform type for each site.

### TRAPPING

Each vertebrate sampling site contained 10 pit traps, arranged in an array of five pairs. Pits of each pair were located five metres apart, with a 10 metre drift fence of aluminium fly wire running between them. The

**Table 1.** Locations at which vertebrate survey sites were installed in 1996. Sites are listed by habitat type (landform unit). Elevations were estimated from 1:25 000 series topographical maps (Sheets 2256-1-3, Nickol Bay SW; 2256-1-4, Nickol Bay NW; 2256-4-2, Dampier SE).

Site Name	Number	Landform unit type	Elevation	AMG Reference
Hearson supra-tidal flat	03	Supra-tidal flat	<2m	50K 0478146 7719272
Speedway sandplain	15	Orange sandplain	5m	50K 0473550 7713207
Rifle Range sandplain	19	Orange sandplain	5m	50K 0474282 7713658
Cowrie Cove dune	17	White coastal sands	10m	50K 0480347 7722510
Watering Cove dune north	00	White coastal sands	10m	50K 0480893 7723848
Sandfly Cove dune	01	White coastal sands	10m	50K 0481296 7730141
Hearson dune	02	White coastal sands	10m	50K 0478800 7718900
Watering Cove dune south	09	White coastal sands	10m	50K 0480966 7723587
Conzinc bloodwood	05	Stony colluvial plain (low)	10m	50K 0481000 7727900
Conzinc stony plain	20	Stony colluvial plain (low)	10m	50K 0479900 7726900
Hearson stony plain	11	Stony colluvial plain (low)	15m	50K 0478515 7720705
Watering Cove track	12	Stony colluvial plain (low)	10m	50K 0479103 7722968
Conzinc plateau	04	Stony colluvial plain (high)	40m	50K 0481664 7728613
Hearson plateau	10	Stony colluvial plain (high)	50m	50K 0479362 7722162
Rifle Range stony plain	14	Stony colluvial plain (high)	60m	50K 0474618 7714342
Conzinc rocky hill	06	Hilltop rock-pile	40m	50K 0481164 7729057
Hearson water tanks	16	Hilltop rock-pile	60m	50K 0477649 7720340
Rifle Range rocky hill	13	Hilltop rock-pile	70m	50K 0474611 7714182
Mt Wongama	08	Hilltop rock-pile	120m	50K 0479837 7724021

distance between pairs of pits was 20 to 30 metres, depending upon local terrain. Each site was thus considered to extend for between one and two hectares in area, depending upon local topography. A vegetation quadrat was embedded within this area.

Pit traps were 20 litre PVC (UV-stabilised) buckets. Each bucket was capped and buried when not in use. Buckets or lids damaged during the course of the survey were replaced.

Sampling effort consisted of a minimum of four nights trapping during each sampling period, using both pit and Elliott

traps (medium size; Elliott Scientific, Upwey, Victoria). Between 20 and 25 Elliott traps were baited with a mix of peanut paste and oats (sometimes containing sardines), and placed on an elliptical transect through each site. For logistical reasons, not all sites could be sampled concurrently. The survey was split into two sections, with sites north of Withnell Bay being run as one group, and those south of Withnell Bay being run as another.

Trapping periods are summarised in Table 2. Trapping effort was not uniform. The southern sites were much more easily accessed

Table 2. Periods during which trapping occurred at each of the 19 vertebrate trapping sites. Each occasion represents a minimum of four nights of pit and Elliott trapping per each site (10 pit traps and 20–25 Elliott traps per site).

Site Name	Site No.	August 1996	November 1996	June 1997	May/June 1998
Hearson plateau	10	+	+	+	+
Hearson stony plain	11	+	+	+	
Hearson supra-tidal flat	03	+	+	+	
Hearson dune	02		+	+	
Sandfly Cove coastal sands	01		+	+	
Conzinc rocky hill	06		+	+	
Conzinc plateau	04		+	+	
Conzinc bloodwood	05		+	+	
Conzinc stony plain	20		+	+	
Rifle Range stony plain	14		+	+	
Cowrie Cove coastal sand	17	+		+	+
Rifle Range sandplain	19		+	+	+
Speedway sandplain	15		+	+	+
Hearson water tanks	16			+	+
Mt Wongama	08			+	+
Rifle Range rocky hill	13			+	+
Watering Cove dune north	00			+	
Watering Cove dune south	09			+	
Watering Cove track	12			+	



than those to the north, and were sampled more frequently. Opportunities to trap at sites were taken whenever possible, even when it was impossible to sample all other sites at the same time.

## FORAGING

At least two person-hours during each trapping period was spent searching for cryptic or infrequently trapped species at each site. Likely habitats within the site were searched using hand tools. In addition, night-time searching was undertaken using portable spotlight and head torch. The Burrup Peninsula is traversed by a number of sealed roads, with relatively high traffic levels. While conducting sampling, numerous road kills and other sightings of fauna were made. These observations are also presented in this report.

## NOMENCLATURE AND IDENTIFICATION

Nomenclature used in this report is that used by the WA Museum (Aplin *et al.* 2001). Species were identified using published keys and descriptions, including Strahan (1995) and Jones and Baynes (1989; for mammals); Cogger (1996), Wilson and Knowles (1988), Storr *et al.* (1983, 1986, 1990, 1999) and Tyler *et al.* (1984). Some tracks and traces were identified using Triggs (1996). An unpublished key to the *Lerista muelleri* complex (currently in preparation) was

provided by L.A. Smith (WA Museum). Mammal distributions were compared to the unpublished maps of N.L. McKenzie, A.A. Burbidge (Department of Conservation and Environment) and A. Baynes (WA Museum).

## RESULTS

While the results presented below describe nearly 40 years of opportunistic collecting and organised fauna survey on the Burrup Peninsula, the great majority of this information has been collected since 1990. Of the total vertebrate ground fauna recorded from the Burrup, the survey described here recorded approximately 80 percent.

## MAMMALS

The following annotated list contains information on all ground mammal species known from the Burrup peninsula. For species recorded during the CALM, now Department of Environment and Conservation (DEC) survey, details of collection locations are also included. Table 3 shows the occurrence of species recorded during the survey within major habitat types.

## TACHYGLOSSIDAE

*Tachyglossus aculeatus* (Shaw, 1792)

Sites 10, 11, 16 (1). Although one Echidna was pit-trapped (at Site 16), echidna foraging sign and

Table 3. Mammal species thought to be extant, or recently extinct (indicated by superscript <sup>E</sup>) on the Burrup Peninsula (17 species), and those recorded from the Dampier Archipelago (10 species) and nearby mainland (20 species). Superscript <sup>1</sup> indicates that the species is introduced.

Habitat types	Supra-tidal flats	Coastal sands	Orange sand sheet
Site numbers	3	0, 1, 2, 9, 17	15, 19
TACHYGLOSSIDAE			
<i>Tachyglossus aculeatus</i>			
DASYURIDAE			
<i>Dasykaluta rosamondae</i>			+
<i>Dasyurus hallucatus</i>			
<i>Ningauai timealeyi</i>			+
<i>Planigale</i> sp.		+	
<i>Pseudantechinus roryi</i>			
<i>Pseudantechinus woolleyae</i>			
MACROPODIDAE			
<i>Macropus robustus</i>	+	+	+
<i>Macropus rufus</i>	+		
<i>Petrogale rothschildi</i>			
MURIDAE			
<i>Hydromys chrysogaster</i>			
<i>Mus musculus</i> <sup>1</sup>	+	+	
<i>Pseudomys chapmani</i> <sup>E</sup>			
<i>Pseudomys delicatulus</i>	+	+	+
<i>Pseudomys hermannsburgensis</i>	+	+	+
<i>Rattus rattus</i> <sup>1</sup>			
<i>Rattus tunneyi</i> <sup>E</sup>			
<i>Zyzyomys argurus</i>			
CANIDAE			
<i>Canis lupus dingo</i> <sup>E</sup>			
<i>Vulpes vulpes</i> <sup>1</sup>	+	+	+
FELIDAE			
<i>Felis catus</i> <sup>1</sup>	+	+	+

scats were observed in many locations on the Burrup. Sites 10 and 11 (stony colluvial surfaces) had foraging diggings on them, and similar sign were often encountered elsewhere, particularly near rockpiles and on colluvial slopes and in rocky

valleys. The WA Museum contains a specimen from the Burrup. Although Tingay and Tingay (1979) rated them as uncommon, Echidna seem to be relatively common in the vicinity of Hearson Cove. Four Echidna were observed in this

Low stony colluvial 5, 7, 11, 12, 20	High stony colluvial 4, 10, 14	Rockpile hills 6, 8, 13, 16	Burrup, other studies	Dampier Archipelago	Nearby Mainland
+	+	+	+		+
			+		+
			+	+	+
+	+		+		+
+	+	+	+		+
		+	+		+
					+
+	+	+	+	+	+
+			+	+	+
					+
	+		+		+
	+		+	+	+
			+	+	+
					+
			+	+	+
+			+	+	+

area by volunteers involved in radio-tracking *Liasis olivaceus barroni* (M. Tutt, pers comm.). Widespread although apparently uncommon on the adjacent mainland, *Tachyglossus* are not known to occur on any islands of the Dampier Archipelago.

#### DASYURIDAE

*Dasykaluta rosamondae* (Ride, 1964)

Site 15 (I). Female (19.5g), pit trapped on sandplain habitat in May 1998 (no breeding activity apparent). Previously known from specimens collected from

Hearson Cove (Burrup Peninsula), Karratha, Dampier Salt lease and Cape Lambert. Appears to be uncommon on the Burrup, although numbers of this species are known to vary greatly, according to the productivity of previous seasons. Known from the adjacent mainland, but not from any of the islands of the Dampier Archipelago.

*Dasyurus hallucatus* Gould, 1842  
This species was not recorded during the present survey. It is known to occur on Dolphin Island immediately to the north of the Burrup (Burbidge and Prince 1972; Tingay and Tingay 1979), and on the adjacent mainland (Karratha Station, Karratha town site, Wickham). W. H. Butler (Dinara 1993) records this species as present on the Burrup Peninsula, but there are no Museum records to confirm this. While it is possible that *D. hallucatus* still lives on the Burrup, it seems unlikely that such a conspicuous species would not have been collected as road-kill by now, considering the volume of traffic which traverses suitable habitat between Dampier and the Woodside gas plant, and around the town of Dampier. The presence of Red Fox on the Burrup may have contributed to its local decline.

*Ningau timealeyi* Archer, 1975  
Sites 4 (3), 11 (1), 14 (1), 19 (1), 20 (3).  
Caught only in pit traps, from

stony colluvial plateaus or slopes. *Ningau* appears to be common on the Burrup, given reasonable seasonal conditions. In November 1996, males ranged from 4 – 7.5g (n=2), and a female weighed 3g. In June 1997, males weighed 5.5 – 6g, and females 3 – 5.5g. No breeding activity was recorded. The WA Museum collections contain three specimens of *N. timealeyi* from the Burrup. There are no collections from any of the islands of the Dampier Archipelago, but *N. timealeyi* is known from collections to the south and south-west of Karratha. It is known to be common and widespread throughout the west Pilbara, in suitable spinifex-dominated habitats.

*Planigale* sp.

Sites 4 (1), 6 (2), 10 (1), 13 (1), 16 (7), 17 (1), 20 (1). All but one of these animals were pit trapped from stony colluvial surfaces or rock-pile habitats. One animal was pit trapped on coastal sands near Cowrie Cove (Site 17). The WA Museum collections contain several *Planigale* sp. specimens from the Burrup, and from localities south and south-west of Karratha. There are no records of this species from the islands of the Dampier Archipelago.

In November 1996, two juvenile males (2.5 and 3g), and one adult female (5.5g) were captured. In June 1997, five males (6.5 – 8g, mean 7g) and one female (6g, no sign or reproductive activity)

were trapped. In May 1998, three males (5.5 – 8g, mean 6.5g) and two females (both 5g) were trapped. No pouch young or reproductive activity were recorded for any of these animals.

Woodside (1997) lists *Planigale maculata* as occurring on the Burrup Peninsula. This species occurs only in the tropical north of the continent, as far south as Mandora and the south-west Kimberley (N. Cooper, pers. comm). Two undescribed species of *Planigale* occur in the Pilbara (Blacket *et al.* 2000) and are presently being described by the WA Museum. Both are present across the Pilbara and are in some localities sympatric (N. Cooper pers. comm.). One of these is known from the Burrup, and has been extensively collected across the Pilbara and into the margins of the western deserts. The second Pilbara *Planigale* species is known from Cape Preston and from the Hamersley Plateau. Given the proximity of Cape Preston to the Burrup, it is possible that the two *Planigale* species may occur in sympatry in the Karratha area.

*Pseudantechinus roryi* Cooper,  
Aplin and Adams, 2000

Site 8 (5). All five animals captured from the summit of Mount Wongama were males. All animals were caught during May or June (range of 25.5 – 36g, mean = 30g, n = 5). The WA Museum collections contain one additional specimen of *P. roryi* from the Burrup Peninsula.

Woodside (1997) lists the congeneric *P. woolleyae* as occurring on the Burrup Peninsula. While *P. woolleyae* occurs sympatrically with *P. roryi* in the west Pilbara, the closest confirmed *P. woolleyae* specimens are known from Cooya Pooya, approximately 60 km to the south-east. It is possible but unlikely that the two species co-occur on the Burrup.

#### MACROPODIDAE

*Macropus robustus erubescens*  
Slater, 1870

Sites 1, 2, 3, 5, 6, 10, 11, 12, 13, 14, 15, 16, 17, 19 (observed). Commonly observed throughout the Burrup Peninsula, and common all over the surrounding district. This species is seen feeding in large numbers on areas of low relief and near coastal sandy areas in the evenings and early mornings. During the day, they are flushed from cover among rock-piles, dense vegetation or beneath infrastructure such as raised pipelines and other industrial objects. In hot weather, Euros often rest beneath mangrove trees (*Avicennia*, *Bruguiera*), sometimes in shallow water. *M. robustus* are very common around the towns of Dampier and Karratha.

Collections of the WA Museum contain material from the Burrup Peninsula (Dampier town site, Mount Burrup), as well as from islands of the Dampier Archipelago (Dixon, Dolphin, East Intercourse, East Lewis, Tozer, Wilcox, West Lewis

Is). There are also records from the Dampier Salt lease, adjacent to the southern Burrup Peninsula.

*Macropus rufus* (Desmarest, 1822)  
Sites 3, 11 (observed). Red Kangaroos are not common on the Burrup. Several animals were observed feeding at dusk on several occasions near Hearson Cove. Red Kangaroos were first noted by Butler and Butler (1987) in 1979, when a road-killed animal was noted. While this species is very common on the grassland communities of the adjacent mainland, there do not appear to be more than a small number on the Burrup. There are no records in the WA Museum collections for the area, and they are not known from any of the islands of the Dampier Archipelago.

*Petrogale rothschildi* Thomas,  
1904

No rock wallabies were recorded during the present study. However, the Burrup Peninsula does support a population of *P. rothschildi*, apparently restricted to the northern half of the peninsula. This is almost certainly a reduction from its former natural range, most probably due to predation by Red Fox. Over the last 10 years, observations of rock wallaby have been made near Watering Cove, King Bay, Withnell Bay, Mount Burrup, Conzinc Bay and along the cliffs of the north-eastern Burrup. The persistence

of *Petrogale* in the Pistol Range area (south of the Hearson Cove access road) is unclear.

These wallabies were initially reported as *Petrogale lateralis* (Dinara 1993), an error that was repeated in various subsequent reports (e.g. O'Brien Planning Consultants 1994). The nearest known population of *P. lateralis* was that on Depuch Island, 100 km to the east, extinct since the 1970's.

*P. rothschildi* is common on islands of the Dampier Archipelago (Dolphin, Enderby, Rosemary and West Lewis Is), and they are common on the adjacent mainland where suitable habitat occurs and Red Fox are absent or in low numbers. The removal of Red Fox (see below) from the Dampier Archipelago appears to have resulted in an increase in wallaby numbers on Dolphin Island.

MURIDAE

*Hydromys chrysogaster*  
Geoffroy, 1804

Listed as occurring on the Burrup Peninsula by Tingay and Tingay (1979), based upon tracks observed on the shores of Searipple Passage by W. H. Butler in 1978. This species is also listed as occurring on the Burrup by Woodside (1994, 1998). It is possible that *Hydromys* persists in the vicinity of the Burrup, but if so, it is uncommon. There have been no confirmed recent sightings.

*Mus musculus* Linnaeus, 1758  
Sites 2 (5), 3 (6), 14 (1). In November 1996, females (n=5, weight 8–9g, mean 8.6g) were not obviously breeding, while among males (n=4, weight 9–12g, mean 10.7), the larger animals (11g and over) had distended testes, while a 9g animal had abdominal testes. In June 1997, a female of 7g and a male of 11.5g (with abdominal testes) displayed no sign of breeding. In addition, a road-killed *Mus* was found near Withnell Bay. Tingay and Tingay (1979) report *Mus* from coastal sand surfaces near Sloping Point, northern Burrup.

All *Mus* were trapped (four in pit traps, eight in Elliott traps) in the vicinity of Hearson Cove, especially on the coastal dunes and supra-tidal samphire flat. One animal was collected from stony colluvial substrates near Hearson Cove (Site 14). This is expected, since while *Mus* is widely distributed, it is commonly observed in high densities in relatively productive habitats such as sandplains and wetlands. *Mus* is not known from islands of the Dampier Archipelago, although there is a record from Dixon Island, near Cape Lambert.

While this species is present in the towns of Dampier, Karratha, Wickham and Samson, and at industrial sites such as the public wharf near King Bay, there are few museum records of this species in the area. WA Museum records contain specimens from Hearson Cove and Roebourne.

*Pseudomys chapmani* Kitchener, 1980

No *P. chapmani* were recorded from the Burrup Peninsula, and there are no specimens from the Burrup in the WA Museum collections. However, many pebble mounds do occur on the Burrup, particularly on stony colluvial valley floor and slope substrates. All of these mounds have a very low Activity Index scores (Anstee 1996), and no mounds were observed which displayed any evidence of activity. The species is believed to be locally extinct on the Burrup Peninsula.

Recent collections (1998, WA Museum records) indicate that *P. chapmani* is still extant at Cape Lambert, 40 km east of the Burrup. While disused mounds are common in the vicinity of Karratha, it is likely that this species still persists on the mainland adjacent to the Burrup Peninsula.

*Pseudomys delicatulus* (Gould, 1842)

Sites 0 (10), 1 (5), 2 (27), 3 (13), 4 (3), 5 (2), 9 (5), 10 (1), 12 (1), 15 (4), 17 (2), 19 (3). *Pseudomys delicatulus* was very abundant on the supra-tidal samphire flats near Hearson Cove, and on coastal sand dune and sandplain substrates. However a few were also trapped on stony colluvial surfaces close to sandy or coastal locations. Almost all of these captures were in pit traps, with a single individual caught in an Elliott trap. Mice captured during

November 1996 showed evidence of breeding activity (females of 7g were lactating, males of 5.5g with distended testes). In June 1997, females of between 7 – 13g appeared to be pregnant, while males did not show obviously distended testes.

The WA Museum collections contain several specimens of *P. delicatulus* from the nearby mainland (Cape Lambert, Karratha Station, Cooya Pooya Station). This species appears to be common and widespread along the Pilbara coast and hinterland. There are no records of this species on any of the Pilbara islands.

*Pseudomys hermannsburgensis*  
(Waite, 1896)

Sites 0 (2), 2 (8), 3 (22), 4 (2), 5 (1), 9 (4), 10 (1), 11 (9), 15 (15), 17 (3), 19 (11), 20 (1). Very abundant on coastal sand dune and sandplain sites, with a few caught on stony colluvial valley floor and slope sites. Most captures (60 out of 79) were made in pit traps, with the remainder from Elliott traps. Females captured in November 1996 (7 – 12g, n = 19) were lactating, while most males (from 5.5 – 10g, n = 20) had distended testes. Females captured in June 1997 (n = 22) showed no evidence of reproductive activity, and while a single male from the same period (n = 13) displayed distended testes, the other twelve did not show enlarged testes. Females captured during August 1996 and May 1998 showed no evidence of reproductive activity.

The WA Museum collections contain several additional records of *P. hermannsburgensis* from the Burrup Peninsula, as well as records from islands of the Dampier Archipelago (Enderby, Rosemary), and from the adjacent mainland (Cape Lambert, 40 km to the west). Tingay and Tingay (1979) reported this species as being very common at Cowrie Cove. However, these authors did not report *P. delicatulus*; it is possible that these species were confused.

*Rattus rattus* (Linnaeus, 1758)

The WA Museum collections hold two specimens of Black Rat from the vicinity of Hearson Cove, both collected during the 1980's. During this time, a large temporary accommodation village was located just north of the Hearson Cove – King Bay supra-tidal flats. It is possible that *R. rattus* occurred in the area at a higher than natural density during that time. No other records exist for this species on the Burrup, although it certainly exists in and around the town of Dampier. It is probably present in the vicinity of the various ship loading facilities and wharves on the west coast of the Burrup as well. It is also known from Dolphin Island (Dampier Archipelago), and from the mainland (Cape Lambert, Karratha, Roebourne). It is worth noting here that a number of Pilbara island populations of Black Rat were eradicated by



poisoning during the late 1980's and 1990's (Burbidge and Morris 2002). While the WA Museum holds specimens from the Montebello (Trimouille, Hermite) and Barrow archipelagos (Barrow, Middle, Boodie, South Double), Black Rats are no longer present on these islands.

*Rattus tunneyi* (Thomas, 1904)

Not recorded from the Burrup, *R. tunneyi* is very common on islands of the Dampier Archipelago (Angel, Dolphin, Enderby, Hauy, Keast, Legendre, Lewis, North Malus, West Lewis), and from other islands off the Pilbara coast (WA Museum collections). It is possible that *R. tunneyi* may cross to the Burrup occasionally from Dolphin Island. If this has occurred in the past, it has not established populations there.

*Zygomys argurus* (Thomas, 1889)

Not recorded during the present survey. Tingay and Tingay (1979) noted that *Zygomys* was present among rocky habitats at several sites on the Burrup, and was common at Sloping Point (northern Burrup). Two records from King Bay in the early 1980's (WA Museum collections) confirm that *Z. argurus* did occur on the Burrup at that time. This species is common on islands of the Dampier Archipelago (Angel, Dolphin, Enderby, Kendrew, Legendre, Rosemary, West Lewis), and has a wide distribution in the west Pilbara. It is probably still present.

CANIDAE

*Canis lupus dingo* (Meyer, 1793)

Not recorded during the present survey. Dingos were recorded on the islands of the Dampier Archipelago during the 1800's (Stow 1981; thought to be Dolphin Island by Gara 1983). In more recent times, domestic dogs (*Canis familiaris*) have often been taken to the Burrup by recreational visitors. The town of Dampier has a large population of pet dogs. No wild dogs are known from the Burrup Peninsula in recent years, and if they were present, they were probably locally exterminated during the early days of pastoral enterprise.

*Vulpes vulpes* Linnaeus, 1758

Red Fox are present on the Burrup Peninsula, particularly along the western coast, around the coves on the east coast, and in the south western part between the Dampier Salt operation and the town of Dampier. Tingay and Tingay (1979) recorded fox from the Burrup (as uncommon), but absent from Dolphin Island. In the 1980's, Red Fox were found to occur on a number of the islands of the Dampier Archipelago (Angel, Cohen, Dolphin, East Intercourse, Gidley, Hauy, Keast, Legendre). These islands are all either close to the mainland, or within swimming distance from each other. A 1080 baiting program removed Red Fox from all these islands in the late 1980's, although they persist on other

islands of the archipelago which are close to the mainland (West Intercourse, East Intercourse, Dixon). A baiting program has been maintained on the northern third of the Burrup Peninsula since the early 1990's. So far, this program has prevented Red Fox from re-establishing on Dolphin Island.

#### FELIDAE

*Felis catus* Linnaeus, 1758

Widely distributed throughout the Pilbara, Cats have probably been present on the Burrup Peninsula since before the town of Dampier was built. They are most commonly observed around the coastal fringe of the Burrup, and rarely further inland. Cats were known from islands of the Dampier Archipelago (Angel, Dolphin, East Intercourse; CALM 1990), and are almost certain to occur on West Intercourse and Dixon island, at least episodically. The current 1080 baiting regime implemented on the Burrup Peninsula and adjacent islands is unlikely to be effective on Cats (fox baits are not palatable to cats). Cats have been recorded in high concentrations around facilities associated with industrial development on the Burrup, and these populations have been the subject of episodic targeted pest control operations. The town of Dampier has a large resident population of Cats. The effect of Cat on native species on the Burrup is unknown, but may be locally significant.

#### REPTILES

All reptile species recorded during the survey are listed below, with details of collection locations and other relevant information where known. Table 4 shows the occurrence of extant species recorded during this survey, in previous surveys of the Burrup Peninsula, and the occurrence of reptile species on both the islands of the Dampier Archipelago and the adjacent mainland.

#### AGAMIDAE

Dragon Lizards

*Ctenophorus caudicinctus*  
*caudicinctus* (Gunther, 1875)

Sites 3 (3), 4 (1), 5 (4), 6 (1), 8 (2), 10 (4), 11 (7), 12 (3), 14 (4), 17 (3), 20 (1). Common and widespread on the Burrup Peninsula, and on nearby islands of the Dampier Archipelago (Enderby, Dixon, Dolphin, Legendre, Malus, Rosemary, West Lewis), and Depuch Island. Also known from the adjacent mainland, with many collections held by the WA Museum from these areas. Frequently observed perching on rocks or other vantage points, usually in rocky or stony habitats.

*Ctenophorus isolepis isolepis*  
(Fischer, 1881)

Sites 2 (1), 3 (4), 19 (1). Common only in habitats with sandy substrates, and apparently only those relatively close to the mainland. Small, isolated sand patches such as those on the northern Burrup and at Cowrie Cove did not appear to support

this species, while the large areas of sandplain at the southern end of the peninsula did. Animals captured in late August were showing breeding colouration. Specimens have been previously taken from Hearson Cove (Burrup), and from Legendre Island (Dampier Archipelago). Also common on the adjacent mainland in areas of suitable habitat.

*Ctenophorus nuchalis* (De Vis, 1884)

Known locally from collections at Karratha and Cleaverville (10 and 20 km to the east of the Burrup Peninsula), this species was not recorded from the Burrup during the present survey. It may occur there, given its very wide distribution and preference for heavy soils.

*Lophognathus gilberti gilberti*  
Gray, 1842

This species was not recorded during the present survey. The WA Museum collection contain numerous specimens from islands of the Dampier Archipelago (Dolphin, Keast, Kendrew, Lady Nora, Legendre, North Malus), but none from either the Burrup, or from locations inland from Roebourne or Karratha. However, Tingay and Tingay (1979) report *L. gilberti* from among mangroves at Sloping Point and Withnell Bay (observation, W. H. Butler, 1978). It is possible that *L. g. gilberti* still occurs on the Burrup, but recent confirmation is lacking.

*Lophognathus longirostris*  
(Boulenger, 1883)

This species was not recorded during the present survey. WA Museum records show that specimens have been taken from Cossack and near Roebourne. It is also abundant in household gardens in Karratha. This species may occur on the Burrup, in sympatry with *L. gilberti*, but this is yet to be confirmed.

*Pogona minor minor* (Sternfeld, 1919)

Sites 3 (1), 11 (2), 12 (1), 14 (1). Taken in pit traps from supra-tidal flats and stony colluvial surfaces, all in the Hearson Cove or Rifle Range areas. Also observed at night resting on the branches of *Acacia coriacea*, on white beach dunes at Hearson Cove. The basking behaviour of this species is usually conspicuous, so it would be expected to be observed or trapped if it was in the area. The WA Museum records contain specimens from Cleaverville, approximately 20 km to the east.

*Tympanocryptis cephalus*  
Gunther, 1867

Not recorded during the present survey. However, WA Museum records indicate that this species occurs on the mainland adjacent to the Burrup Peninsula. While it is possible that this species may occur on the Burrup, the local preference of this species for cracking clay substrates indicate that this is unlikely.

Table 4. Reptile species thought to be extant on the Burrup Peninsula (61 species), and those recorded from the Dampier Archipelago and nearby mainland. Superscript <sup>1</sup> indicates that the species is introduced, and ? indicates uncertainty regarding current status.

Habitat types	Supra-tidal flats	Coastal sands	Orange sand sheet
Site numbers	3	0, 1, 2, 9, 17	15, 19
<b>AGAMIDAE</b>			
<i>Ctenophorus caudicinctus caudicinctus</i>	+	+	
<i>Ctenophorus isolepis isolepis</i>	+	+	+
<i>Ctenophorus nuchalis</i>			
<i>Lophognathus gilberti gilberti</i>			
<i>Lophognathus longirostris</i>			
<i>Pogona minor minor</i>	+	+	
<i>Tympanocryptis cephalus</i>			
<b>GEKKONIDAE</b>			
<i>Crenodactylus ocellatus horni</i>			
<i>Diplodactylus conspicillatus</i>	+		+
<i>Diplodactylus savagei</i>			
<i>Diplodactylus stenodactylus</i>	+	+	+
<i>Gehyra pilbara</i>			
<i>Gehyra punctata</i>		+	
<i>Gehyra purpurascens</i>			
<i>Gehyra variegata</i>	+	+	
<i>Hemidactylus frenatus</i> <sup>1</sup>			
<i>Heteronotia binoei</i>	+		+
<i>Nephrurus levis pilbaraensis</i>			
<i>Oedura marmorata</i>		+	
<i>Strophurus ciliaris aberans</i>		+	
<i>Strophurus elderi</i>		+	
<b>PYGOPODIDAE</b>			
<i>Delma borea</i>		+	
<i>Delma nasuta</i>			
<i>Delma pax</i>			+
<i>Delma tincta</i>			+
<i>Lialis burtonis</i>	+	+	
<b>SCINCIDAE</b>			
<i>Carlia munda</i>			
<i>Carlia triacantha</i>			
<i>Cryptoblepharus carnabyi</i>			
<i>Cryptoblepharus plagiocephalus</i>			
<i>Ctenotus duricola</i>			
<i>Ctenotus grandis titan</i>			+
<i>Ctenotus helenae</i>			
<i>Ctenotus leonhardii</i>		+	
<i>Ctenotus pantherinus ocellifera</i>	+		+
<i>Ctenotus robustus</i>			



Table 4. (cont.)

Habitat types	Supra-tidal flats	Coastal sands	Orange sand sheet
Site numbers	3	0, 1, 2, 9, 17	15, 19
<b>SCINCIDAE (cont.)</b>			
<i>Ctenotus rubicundus</i>			
<i>Ctenotus saxatilis</i>	+	+	
<i>Ctenotus serventyi</i>		+	+
<i>Cyclodomorphus melanops</i>			+
<i>Egernia depressa</i>			
<i>Egernia pilbaraensis</i>			
<i>Egernia striata</i>			
<i>Glaphyromorphus isolepis</i>	+	+	
<i>Lerista bipes</i>	+	+	+
<i>Lerista muelleri</i>		+	+
<i>Menetia greyii</i>	+	+	+
<i>Menetia surda</i>			
<i>Morethia ruficauda exquisita</i>		+	
<i>Notoscincus butleri</i>			
<i>Notoscincus ornatus ornatus</i>	+	+	+
<i>Teliqua multifasciata</i>			+
<b>VARANIDAE</b>			
<i>Varanus acanthurus</i>			
<i>Varanus brevicauda</i>			
<i>Varanus eremius</i>			
<i>Varanus giganteus</i>			
<i>Varanus gouldii</i>			
<i>Varanus panoptes rubidus</i>			
<i>Varanus pilbaraensis</i>			
<i>Varanus tristis tristis</i>			
<b>TYPHLOPIDAE</b>			
<i>Ramphotyphlops australis</i>			
<i>Ramphotyphlops ammodytes</i>		+	
<i>Ramphotyphlops braminus</i> <sup>1</sup>			
<i>Ramphotyphlops grypus</i>		+	
<i>Ramphotyphlops hamatus</i>			
<b>BOIDAE</b>			
<i>Antaresia perthensis</i>			
<i>Antaresia stimsoni</i>			
<i>Aspidites melanocephalus</i>			
<i>Liasis olivaceus barroni</i>			
<b>ELAPIDAE (Terrestrial)</b>			
<i>Acanthophis wellsi</i>			
<i>Brachyurophis approximans</i>			
<i>Demansia psammophis cupreiceps</i>			
<i>Demansia rufescens</i>		+	+



Table 4. (cont.)

Habitat types	Supra-tidal flats	Coastal sands	Orange sand sheet
Site numbers	3	0, 1, 2, 9, 17	15, 19
ELAPIDAE (Terrestrial) (cont.)			
<i>Furina ornata</i>			
<i>Parasuta monarchus</i>			
<i>Pseudechis australis</i>	+		
<i>Pseudonaja modesta</i>			
<i>Pseudonaja nuchalis</i>		+	
<i>Suta fasciata</i>			
<i>Suta punctata</i>			
COLUBRIDAE			
<i>Fordonia leucobalia</i>			

**GEKKONIDAE**                      Geckos  
*Crenadactylus ocellatus horni*  
(Lucas and Frost, 1895)

Site 11 (3), 12 (4). Uncommon during the present survey. Collections of this species were taken from the Burrup Peninsula in 1983 and 1998. It is also known from islands of the Dampier Archipelago (Dolphin Island), and has a wide distribution across the Pilbara. There are no records of this species from the mainland adjacent to the Burrup Peninsula, but its presence in the vicinity of the lower Fortescue River and Burrup Peninsula indicates that it is likely to occur in the Karratha area.

*Diplodactylus conspicillatus*  
Lucas and Frost, 1897  
Site 3 (1), 11 (2), 14 (1), 15 (2), 19 (10). Pit trapped from a wide variety of substrate types. WA Museum records have collections from Legendre Island of the Dampier Archipelago, and from various locations on the adjacent main-

land. This species is apparently common and widespread.

*Diplodactylus savagei* Kluge, 1963  
Site 5 (1), 10 (3), 12 (1), 14 (2), 16 (1). Collected from rocky spinifex habitats. Also recorded from stony colluvial slopes inland from Withnell Bay. Previously recorded from King Bay and from locations on the nearby mainland, it is not known from the Dampier Archipelago. This species is probably common in suitable spinifex habitats.

*Diplodactylus stenodactylus*  
Boulenger, 1896  
Site 2 (4), 3 (9), 11 (3), 13 (1), 15 (7), 19 (7). Pit trapped from low lying supra-tidal or sandplain environments. Also recorded from Cape Lambert and Legendre Island (Dampier Archipelago). This species is apparently common on sandy substrates, but possibly absent from the small areas of sand habitat on the northern Burrup.





high rocky hills. Also caught beneath tree bark and other litter. Previously collected from islands of the Dampier Archipelago (Dolphin, Eaglehawk, Hauy, Legendre, West Lewis), and from Karratha, Cape Lambert, Cossack and Wickham (WA Museum collections). Very common and widespread.

*Hemidactylus frenatus* Dumeril  
and Bibron 1836

This species is currently known from the Burrup Peninsula only from the town of Dampier (B. Maryan, pers. comm.). It has been present in Karratha since at least the early 1990's, and appears to have steadily spread through the entire town during that time. The apparently commensal habit of *H. frenatus* with humans and their built environment indicates that this species may not become established in natural habitats.

*Heteronotia binoei* (Gray, 1845)

Site 3 (I), II (I), 15 (I). Apparently uncommon on the Burrup, this species is usually found beneath ground cover in a wide variety of habitat types. WA Museum collections record this species from Dampier town site and King Bay. Very common on islands of the Dampier Archipelago (Conzinc, Dolphin, Gidley, Goodwyn, Hauy, Keast, Kendrew, Lady Nora, Legendre, Rosemary Is), and on the mainland adjacent to the Burrup (WA Museum collections).

*Nephrurus levis pilbaraensis*

Storr, 1963

This species is not currently known from the Burrup Peninsula, but has been collected from Cape Lambert, 40 kilometres to the east, and from localities to the south of Karratha and Roebourne. As it appears to favour sandplain habitats, it may occur on the orange sandplains in the vicinity of the Rifle Range and Speedway. Poorly known from the adjacent mainland.

*Oedura marmorata* Gray, 1842

Site 13 (I), 17 (5). Pit trapped close to a gabbro rockpile. Although this species would be expected to be abundant within these rocky habitats, only the single record was made. The WA Museum records contains several specimens from the Burrup, as well as records from islands of the Dampier Peninsula (Dolphin Island and Town site Knob). Poorly known from the mainland Pilbara, and so far not recorded from areas adjacent to the Burrup Peninsula.

*Strophurus ciliaris aberrans*

(Glauert, 1952)

Site 2 (4). Pit trapped in November 1996, on white coastal sand dunes at the northern end of Hearson Cove. WA Museum collections contain specimens from Dampier town site, and from Cape Lambert, but there are no records from the Dampier Archipelago. It may occur on the islands in coastal sand habitats with *Acacia* scrub.

*Strophurus elderi* (Stirling and Zietz, 1893)

Sites 2 (1), 6 (1), 13 (1). Previously recorded from the vicinity of King Bay, Burrup Peninsula (WA Museum collections). A large series were collected from Dolphin Island in 1962, and specimens have been taken from the mainland south west of Karratha. Probably common in suitable spinifex habitat, this species was found among basalt rock piles and on coastal dunes. It probably occurs wherever suitably large *Triodia* clumps occur.

**PYGOPODIDAE** Legless Lizards  
*Delma borea* Kluge, 1974

Not recorded during the present survey. In the Pilbara, this species is reliably known only from Rosemary Island (Dampier Archipelago, WA Museum collections; B. Maryan, pers. comm.). These specimens, and a few from Barrow Island and the Montebellos (Hermite Island), represent an outlying component of the range of this species, which is otherwise found in the tropical north. It is possible that *D. borea* does occur on the Burrup Peninsula, and on other islands of the Dampier Archipelago.

*Delma nasuta* Kluge, 1974

Not collected during the present survey, but previously recorded from adjacent mainland, in the Karratha area. It is not known from the Dampier Archipelago,

or from any of the other islands nearby.

*Delma pax* Kluge, 1974

Site 11 (2), 15 (1). Uncommon during the present survey, but previously recorded from the Burrup at King Bay and Dampier, and from 'Burrup Peninsula' (collections of WA Museum). Also recorded from islands of the Dampier Archipelago, and from the adjacent mainland, at Wickham and Karratha. This species is uncommon on the Burrup, but is well represented within WA Museum collections from elsewhere in the west Pilbara.

*Delma tinctoria* De Vis, 1888

Site 19 (1). Collected from sandplain habitat at the southern end of the Burrup, this species has previously been recorded in the vicinity of Dampier, on the Burrup Peninsula, and from the adjacent mainland near Karratha town site (WA Museum collections). It is not known from the islands of the Dampier Archipelago.

*Lialis burtonis* Gray, 1835

Sites 3 (11), 5 (1), 6 (1), 10 (1), 12 (1), 17 (1). Pit trapped from a wide variety of habitats (supra-tidal samphire, stony clay colluvial valley floor, rocky hilltops). WA Museum collections contain several specimens from the Burrup Peninsula, from islands of the Dampier Archipelago (Enderby, West Lewis), and from other localities in the district

(Cape Lambert, Cossack, Karratha, Roebourne). This species is common and widespread in the west Pilbara.

**SCINCIDAE** Skink Lizards  
*Carlia munda* (De Vis, 1885)

Site 20 (I). Pit trapped from stony colluvial plains supporting spinifex, adjacent to Conzinc Bay. Not previously recorded from the Burrup Peninsula, it is otherwise known from several localities on the adjacent mainland. There are no records of this species from islands of the Dampier Archipelago.

*Carlia triacantha* (Mitchell, 1953)  
Site II (I). Uncommon during the present survey. It is previously known from three records from the Burrup, and from Enderby Island, Dampier Archipelago (WA Museum collections). There is one record of *C. triacantha* from the mainland to the west of the Burrup, at Cape Preston. With specimens from Barrow Island, these records represent the most southern records of this species on the west coast.

*Cryptoblepharus carnabyi* Storr, 1976

Sites 6 (I), 14 (2), 16 (I). Pit trapped among stony boulder habitats. Other *Cryptoblepharus* observed on boulders in rockpile habitats but not captured were probably this species. Previously recorded from the Burrup Peninsula, from Dolphin Island (Dampier Archipelago), and from Depuch

Island (100 km east). There are no records from the nearby mainland.

*Cryptoblepharus plagiocephalus* (Cocteau, 1836)

Site 8 (I), II (I). Although rarely recorded during the present survey, this species is probably common and widespread on the Burrup, particularly in areas with trees and good litter cover. A total of six collections of this species are lodged in the WAM from the Burrup Peninsula, including several from the Dampier town site. Tingay and Tingay (1979) noted that this species was 'very common at every site'. *C. plagiocephalus* is also known from Dolphin and Angel Islands (Dampier Archipelago), and from scattered localities on the Pilbara mainland..

*Ctenotus duricola* Storr, 1975

Not recorded during the present survey. This species is known from rocky habitats at localities to the south west of Karratha, on Karratha Station. Although there are no records of this species from either the Burrup Peninsula or islands of the Dampier Archipelago, it is possible that it occurs there.

*Ctenotus grandis titan* Storr, 1980

Site 19 (I). A single record during the present survey, but previously collected from the Burrup Peninsula and Cape Lambert in 1998 by other workers. This species appears to be uncommon on the Burrup,

and there are no records from the Dampier Archipelago. Represented in the WA Museum collections from scattered collections throughout the west Pilbara.

***Ctenotus helenae* Storr, 1969**

While not known from the Burrup Peninsula or adjacent islands, this species was recorded from Cape Lambert in 1998, and from inland localities on Karratha Station. It may be present on the Burrup Peninsula.

***Ctenotus leonhardii* (Sternfeld, 1919)**

Site 17 (2). Pit trapped in June 1997, on coastal sands at Cowrie Cove. Appears to be uncommon in this area, although this species has a very wide distribution, and is known to occur in a wide range of habitats. No collections of this species are known from the mainland adjacent to the Burrup, and these specimens represent its most northern coastal distribution.

***Ctenotus pantherinus ocellifer* (Boulenger, 1896)**

Site 3 (1), 11 (6), 14 (2), 19 (26). Pit trapped, and occasionally caught in Elliott traps, this species was very common on sandplain habitats on the southern end on the Burrup. It was also recorded from supra-tidal flats and sandplains near Hearson Cove, and from stony spinifex habitats near on the southern Burrup. This is a widespread and conspicuous species, which is

usually easily captured or seen. Tingay and Tingay (1979) noted that this species appeared uncommon, sighting only a single specimen. It is otherwise recorded from Cleaverville, Nickol Bay (probably near Karratha) and Enderby Island in the Dampier Archipelago.

***Ctenotus robustus* Storr, 1970**

Not known from the Burrup Peninsula or adjacent islands. Specimens previously referred to *Ctenotus robustus*, but now known to be an undescribed taxon, were recorded from Cape Preston in 1998, and from several disjunct locations in the west Pilbara (Aplin and Smith 2001). This undescribed species may be present on the Burrup.

***Ctenotus rubicundus* Storr, 1978**

Site 5 (1). Collected from the Burrup Peninsula in 1998. Endemic to the Pilbara, this species favours rocky habitats, and is probably found throughout the Burrup Peninsula in suitable habitat. It does not appear to be common, and is also known by a single specimen from Dolphin Island (Dampier Archipelago). These records are the most northern known for this Pilbara species. There are several records from the adjacent mainland.

***Ctenotus saxatilis* Storr, 1970**

Sites 0 (1), 1 (2), 2 (1), 3 (3), 4 (9), 5 (6), 6 (8), 7 (3), 8 (1), 9 (1), 10 (8), 11 (4), 12 (2), 13 (14), 14 (6), 16 (1), 17 (2) 20 (1). Common and widespread

throughout the Burrup Peninsula, this species was recorded from all habitats. Appeared to be particularly common wherever spinifex cover was good. Caught in Elliott traps as well as pit traps, *Ctenotus saxatilis* is also known from the adjacent mainland, and a number of islands of the Dampier Archipelago (Angel, Conzinc, Dolphin, Eaglehawk, Town site Knob, Enderby, Hauy, Keast, Kendrew, Lady Nora, Legendre, Malus, Rosemary, West Lewis). *Ctenotus saxatilis* is common and widespread throughout the west Pilbara.

*Ctenotus serventyi* Storr, 1975  
Sites 2 (2), 14 (1), 15 (4), 17 (1), 19 (9). Previously recorded from several localities on the adjacent mainland, and from the Dampier Archipelago (Eaglehawk, Enderby, Legendre and Rosemary Is). All but one were pit trapped from sandplain sites on the southern Burrup (Site 14 is a stony colluvial slope). This species is apparently common in suitable habitat.

*Cyclodomorphus melanops melanops* (Stirling and Zietz, 1893)  
Sites 5 (1), 11 (1), 13 (1), 15 (1). Apparently uncommon, although suitable habitat in spinifex clumps and litter deposits along small gully systems seems to be common. Previously recorded from a single specimen on the adjacent mainland (near Cleaverville), and from Dolphin Island (Dampier Archipelago).

*Egernia depressa* (Gunther, 1875)  
Previously collected from locations near Cleaverville, 40 km to the east of the Burrup Peninsula. Two were collected in 2003, from rockpile habitats near Hearson Cove (M. Bamford, pers. comm.). The rockpile environments of the Burrup Peninsula seem very well suited to this species, although there are no records of *E. depressa* from similar habitats of the Dampier Archipelago.

*Egernia pilbaraensis* Storr, 1978  
14 (1). Only recorded once during the present survey. Previously recorded from the Burrup Peninsula, from Rosemary Island (Dampier Archipelago), and from near Cleaverville (40 km to the east). The rockpile habitats of the Burrup seem ideally suited to this species. It is probably widespread, if uncommon, on the Burrup.

*Egernia striata* Sternfeld, 1919  
Not known from the Burrup Peninsula or adjacent islands. This species was recorded from a single locality on Karratha Station, approximately 20 kilometres south west from Karratha. It may be present on the Burrup.

*Glaphyromorphus isolepis* (Boulenger, 1887)  
Site 2 (3), 3 (1), 9 (1). Pit trapped on the supra-tidal flats near Hearson Cove. Very common in sandy coastal habitats on the Pilbara

coast. This species has also been previously recorded from Dampier town site and King Bay (Burrup Peninsula), and from numerous islands of the Dampier Archipelago (Angel, Conzinc, Dolphin, Eaglehawk, Town site Knob, Hauy, Keast, Kendrew, Lady Nora, Legendre, Malus, Rosemary, West Lewis Is). It is probably more common and widespread than the single record made during the present survey would indicate.

*Lerista bipes* (Fischer, 1882)

Sites 0 (12), 2 (10), 3 (6), 9 (3), 11 (2), 13 (1), 15 (10), 17 (16), 19 (1). Almost always pit trapped on sandy substrates, including both white coastal sands and orange sandplain habitats. The high density of tracks present at some coastal dune sites indicate that it is more common than the results of pit trapping indicate. One animal was pit trapped on stony colluvial soils near Hearson Cove (Site 11), approximately 1 kilometre from the nearest area of sandy substrate. The WA Museum collection holds specimens from various localities on the Burrup, as well as islands of the Dampier Archipelago (Conzinc, Eaglehawk, Town site Knob, Enderby, Gidley, Hauy, Keast, Kendrew, Lady Nora, Legendre, North Malus), and from other localities in the district (Cossack, Port Samson, Cape Lambert). This species is regionally common on coastal sands.

*Lerista muelleri* (Fischer, 1881)

Sites 1 (8), 5 (1), 6 (1), 8 (3), 10 (1), 11 (5), 15 (8), 19 (3). Mostly trapped on orange sandplain habitats, or white coastal sands, although one animal taken from stony clay colluvial habitats near Conzinc Bay (Site 5). The WA Museum collections contain many *L. muelleri* specimens from the district, including the Burrup Peninsula, islands of the Dampier Archipelago (Eaglehawk, Enderby, Keast, Legendre, Rosemary), and other nearby localities (Cape Lambert, Cossack, Karratha). It is probably more common than trapping results indicate, particularly in litter-rich habitats beneath trees.

This species is currently subject to taxonomic review, with the likely result that at least two, and possibly six species derived from the original *L. muelleri* are now known from the Burrup Peninsula. The coastal plain between Onslow and Port Hedland contains six species of *Lerista*, once referred to *Lerista muelleri*. Of these six, two are confirmed to occur on the Burrup (WA Museum collections). While it is unlikely that all six species will be found on the Burrup, it is possible that one or two of the other four will be found there eventually. Their integrity has been confirmed by genetic comparisons (Smith *et al* 2001), and the taxonomy and systematics of this group of *Lerista* species are in preparation (Smith and Adams, in press).

*Menetia greyii* Gray, 1845

Sites 2 (1), 3 (6), 9 (1), 11 (1), 12 (1), 15 (9), 17 (4), 19 (3). This species was abundant on a range of softer substrate types, particularly the supra-tidal samphire community, coastal sands and orange sandplains. One was also trapped on near-coastal stony colluvial clays. The WA Museum collections contain many specimens from the Burrup Peninsula, as well as several from the surrounding district (Cape Lambert, Wickham). There are no records from nearby islands.

*Menetia surda surda* Storr, 1976

Site 8 (1), 12 (1). Very few *M. surda* were recorded during the present survey. It is possible that some of those animals recorded as *M. greyii* and not taken as voucher specimens were mis-identified *M. surda*. The WA Museum collection contains several specimens of *M. surda* from the Burrup Peninsula, as well as two from Dolphin Island (Dampier Archipelago). This species is also recorded from Cape Preston, and from a mainland locality south of Karratha.

*Morethia ruficauda exquisita*

Storr, 1973

Sites 1 (4), 4 (5), 6 (2), 9 (1), 10 (1), 11 (1), 12 (2), 13 (2), 14 (4), 16 (3), 17 (4), 20 (1). Pit trapped in a wide range of habitats (white coastal sands, stony colluvial deposits, rockpile hills). This conspicuous species was also commonly observed in litter or near rockpiles. Apparently common and wide-

spread, the WA Museum collection contains specimens from islands of the Dampier Archipelago (Dolphin, Enderby, Legendre Is). Although there are no museum records of *M. ruficauda* in the Karratha area, this species is observed in Karratha gardens. Tingay and Tingay (1979) noted this species as 'very common at all sites'.

*Notoscincus butleri* Storr, 1979

Not known from the Burrup Peninsula or adjacent islands, this species was recorded from inland localities on Karratha Station, approximately 20 kilometres from Karratha. It is an inconspicuous small skink, and may be as yet undetected on the Burrup. It occurs in sympatry with *N. o. ornatus* near Pannawonica, so the possibility that it lives on the Burrup cannot yet be discounted.

*Notoscincus ornatus ornatus*

(Broom, 1896)

Sites 3 (1), 11 (2), 15 (7), 17 (1), 19 (11). A common species that was pit trapped in a wide range of habitat types on the Burrup Peninsula (from supra-tidal flats, sandplains and stony colluvial plains). The WA Museum collections do contain a few specimens from the surrounding district, south of Karratha, and one from Depuch Island, 100 kilometres to the east.

*Tiliqua multifasciata* Sternfeld,

1919

Site 19 (1). A single adult was pit



trapped during the present survey. However, road-killed individuals of this species are sometimes seen on the mainland, near Karratha. It has been recorded from Potter Island, near Cape Preston. It is unlikely that such a conspicuous species would escape notice on the Burrup Peninsula, considering the high level of vehicle traffic occurring there.

**VARANIDAE Monitor Lizards**  
*Varanus acanthurus* Boulenger, 1885

Sites 5 (1), 6 (1), 14 (1). Pit trapped from rock-pile habitats near the northern end of the Burrup Peninsula. Otherwise known from islands of the Dampier Archipelago (Hauy, Legendre, West Lewis Is), and from the mainland adjacent to the Burrup (Cleaverville, WA Museum collections). This species has a wide distribution in the Pilbara, and is probably common in rocky habitats.

*Varanus brevicauda* Boulenger, 1885

Not known from the Burrup Peninsula or from the islands of the Dampier Archipelago, this species has been collected from the adjacent mainland (Karratha, Cleaverville, WA Museum collections). It may yet be discovered on the Burrup, or on Dampier Archipelago islands.

*Varanus eremius* Lucas and Frost, 1895

Not recorded during the present

survey, but the WA Museum collections record single specimens of *V. eremius* from both the Burrup Peninsula and the adjacent mainland (Cape Lambert). Apparently uncommon.

*Varanus giganteus* (Gray, 1845)

Observed among rockpile habitat north of Hearson Cove. It is apparently not common on the Burrup Peninsula, and is unknown from any of the islands of the Dampier Archipelago. While *V. giganteus* is regularly seen in the vicinity of Karratha and Roebourne, here are no records in the WA Museum collections for this species.

*Varanus gouldii* (Gray, 1838)

Observed near rocky hills along the access road to the Hearson Cove industrial area. This species is apparently uncommon on the Burrup Peninsula. It is widespread on islands of the Dampier Archipelago (Angel, Cohen, Delambre, Dolphin, Eaglehawk, Gidley Is) and on the adjacent mainland, although WA Museum collections hold few specimens.

*Varanus panoptes rubidus* Storr, 1980

Site 8 (2). Also observed recently near Hearson Cove (B. Maryan, pers. comm.). *Varanus panoptes* is known from two other islands of the Dampier Archipelago (Dolphin and Hauy Is), and from the adjacent mainland

(Cleaverville). Very few specimens are held in the WA Museum.

*Varanus pilbaraensis* Storr, 1980  
Sites 6 (2) and 10 (2). The WA Museum collections contain a single specimen from Conzinc Bay on the Burrup, and several others were observed on the Burrup in 1998, in rockpile habitats (B. Maryan, pers. comm.). *V. pilbaraensis* was observed on Dolphin Island in September 2005, but not captured. The nearest confirmed occurrence of *V. pilbaraensis* to the Burrup is from Mt Herbert, approximately 80 km south-east in the Chichester Range.

*Varanus tristis tristis* (Schlegel, 1839)  
Sites 10 (1), 11 (2), 12 (1). Pit trapped or observed on stony colluvial substrates, in valley floors and lower slopes. Other than populations known to occur on Conzinc and Dolphin Islands (CALM 1990), the closest confirmed occurrence of this species is in the Chichester Range approximately 120 kilometres to the south of the Burrup.

**TYPHLOPIDAE** Blind Snakes  
*Ramphotyphlops australis* (Gray, 1845)

A single specimen known from the Burrup Peninsula (WA Museum collection), taken from King Bay in 1980. This single specimen is the only individual known from the Pilbara of this

generally south-western species (the closest conspecific collection is from Shark Bay). Its status in the Burrup area is unknown.

*Ramphotyphlops ammodytes* (Montague, 1914)  
Sites 0 (1), 2 (1), 6 (2), 7 (1), 17 (1). Pit trapped in very different habitats on the Burrup (white coastal dune and rocky hilltop), this species is also known from islands of the Dampier Archipelago (Town site Knob, Legendre I), and from the mainland adjacent to the Burrup (Karratha, Cape Preston and several localities further inland).

*Ramphotyphlops braminus* (Daudin, 1803)  
This naturalised exotic species has been recorded from the town site of Karratha, and from Karratha Station (Maryan 2001). It is almost certain to be in the town site of Dampier, on the Burrup Peninsula, given the large number of garden plants moved between the two towns. It is unlikely to occur outside of cultivated or well watered gardens in these towns.

*Ramphotyphlops grypus* (Waite, 1918)  
Site 1 (1). Collected by pit trap from white beach sands near Withnell Bay, Burrup Peninsula, during trapping conducted prior to the present survey. Also known from two specimens from Dampier town site, and three from elsewhere on the Burrup (WA Museum col-



temporary pools, and while active at night. Several large individuals have been killed by vehicles, and a large individual was removed from the end of the Dampier Port Authority public wharf. *Liasis o. barroni* is also present on the mainland adjacent to the Burrup Peninsula, and appears to be relatively common.

Pilbara olive pythons are currently listed under Schedule 1 of the WA Wildlife Conservation Act, as Fauna that are rare, or likely to become extinct. Burrup Peninsula *Liasis olivaceus* has been subject to behavioural and ecological studies by Dr David Pearson (DEC) and a local volunteer group (Pearson 2003). While radio-tracking a series of five Pilbara olive pythons in the vicinity of King Bay – Hearson Cove, another eight olive pythons were observed (M. Tutt, field notes).

## COLUBRIDAE

### Back-fanged Snakes

#### *Fordonia leucobalia* Gray, 1842

Not encountered during the present survey, as mangrove habitats were not included within the survey. However, this species may be encountered in coastline habitats around the Burrup. Collected from King Bay (Burrup Peninsula), and from Cossack, Point Samson and Nickol Bay (Karratha), this species is apparently common in mangrove habitats on the Pilbara coast.

## ELAPIDAE (Terrestrial)

### Front-fanged Snakes

#### *Acanthophis wellsi* Hoser, 1998

Previously collected from the Burrup Peninsula (including the town site of Dampier; WA Museum collections), and from the town of Karratha. This species was not encountered during the present survey, and has not been recorded from any of the islands of the Dampier Archipelago. This species is widely distributed throughout the west Pilbara.

#### *Brachyuropis approximans*

(Glauert, 1954)

Not known from the Burrup Peninsula, this species has been collected from the adjacent mainland (20 kilometres south of Roebourne). It may occur on the Burrup, or on adjacent islands.

#### *Demansia psammophis*

*cupreiceps* (Schlegel, 1837)

Known from a single collection from the Burrup Peninsula (at Dampier town site), and from Cossack (WA Museum collections). Apparently uncommon on the Burrup Peninsula, although several individuals of this species have been removed from dwellings in Karratha and subsequently released. It has a wide distribution throughout the Pilbara.

#### *Demansia rufescens* Storr, 1978

Site 6 (1), 9 (3), 19 (1). Collected from sandplain habitat at the southern end of the Burrup, this

species has been previously collected from the Dampier town site and from elsewhere on the Burrup (WA Museum collections). Also known from Dolphin Island, (Dampier Archipelago), and from various locations in the vicinity of Roebourne and Karratha. Appears to be locally more common than *D. psammophis*.

*Furina ornata* (Gray, 1842)

Site 11 (I). Uncommon during the present survey, but previously collected from the Burrup Peninsula at Hearson Cove and Dampier town site, and from Karratha. It is not known to occur in the Dampier Archipelago. Probably widely distributed on the Burrup.

*Parasuta monarchus* (Storr, 1964)

Not currently known from the Burrup Peninsula, this species has been collected from the adjacent mainland at Cape Preston, 50 kilometres to the west (WA Museum collections). It may occur on the Burrup, or on adjacent islands.

*Pseudechis australis* (Gray, 1842)

Site 11 (I). Also observed on supra-tidal flats near Hearson Cove. A common and widespread species throughout the west Pilbara, the WA Museum collections contain two specimens from the Burrup Peninsula, as well as a few from the islands of the Dampier Peninsula (Rosemary, West Lewis Is), and from the adjacent mainland.

*Pseudonaja modesta* (Gunther, 1872)

Not currently known from the Burrup Peninsula, but WA Museum records indicate that this species lives on the mainland adjacent (Karratha town site). It is possible that this species is present on the Burrup.

*Pseudonaja nuchalis* Gunther, 1858

Site 9 (I). Pit trapped on white coastal sand dunes near Watering Cove. Probably occurs all over the Burrup. The WA Museum collections contain several additional records from the Burrup, as well as many from locations on the adjacent mainland (Cape Lambert, Karratha). It is not known from any of the other islands of the Dampier Archipelago.

*Suta fasciata* Rosen, 1905

While not yet recorded from the Burrup Peninsula, *S. fasciata* is currently known from Roebourne, Cooya Pooya and Karratha Station, but not from the islands of the Dampier Archipelago. It has a wide distribution within the Pilbara, and may occur on the Burrup.

*Suta punctata* (Boulenger, 1896)

Not encountered during the present survey. However, the WA Museum collections contain one specimen from the Burrup Peninsula, and others from Roebourne and near Karratha on the mainland adjacent to the Burrup. It has a wide distribution throughout the Pilbara.

## ELAPIDAE (Marine) Sea snakes

No true sea snakes (of the *Hydrophis* group, Aplin and Smith 2001) were recorded during the present survey. However, a number of species are known from the waters surrounding the Dampier Archipelago, and any of these could be encountered along the coasts of the Burrup Peninsula. The species below are listed for completeness, and are not presented in Table 4.

### *Acalyptophis peronii* (Dumeril, 1853)

This species has been collected from Point Samson (40 km to the east), and from Barrow Island. These two records represent the most southern and western records of this predominantly tropical species. The status of *A. peronii* off the Pilbara coast is unknown.

### *Aipysurus apraefrontalis* Smith 1926

Last recorded in the Dampier Archipelago region in 1964, from near Roebourne. This species is very poorly known from waters off the Pilbara, but is known to occur in Exmouth Gulf, and over the North West Shelf. Otherwise known off Western Australia from two records from off the Kimberley coast. Its status is unknown.

### *Aipysurus laevis* Lacepede 1804

Last recorded from waters of the Dampier Archipelago in 1978, this species is widely distributed in

tropical waters as far south as the west coast as Exmouth Gulf. A number of specimens have been taken from the Dampier Archipelago.

### *Disteira major* (Shaw 1802)

Previously recorded from waters of Mermaid Straight, within the Dampier Archipelago, and from a few widely scattered records between Dampier and Exmouth. It appears to be common in more southern waters, although its status off the Pilbara coast is unknown.

### *Disteira stokesii* (Gray 1846)

Collected from waters of the Dampier Archipelago, and known by a few widely scattered records from off the Pilbara coast. Its status in Pilbara waters is unknown.

### *Hydrelaps darwiniensis*

Boulenger 1896

Known from Pilbara waters only from collections from Nickol Bay and Cossack. These represent the most south western records of this species from Australia. Its status in Pilbara waters is unknown.

## AMPHIBIANS

### Frogs

All amphibian species recorded during the survey are listed below, with details of their collection locations and other relevant information. Table 5 shows the occurrence of extant species recorded during this survey, in previous surveys of the Burrup Peninsula, and the

occurrence of amphibian species on both the islands of the Dampier Archipelago and the adjacent mainland.

#### HYLIDAE

##### *Cyclorana australis* (Gray 1842)

Not recorded in the present survey, but known from a single specimen from Karratha town site. No other records of this species are known from the Burrup, and this record (and a couple more further south) represent the most western extent of this species. It may be present on the Burrup, in sympatry with *Cyclorana maini*.

##### *Cyclorana maini* Tyler and Martin 1977

This is a very common and widespread species throughout the Pilbara. Although not encountered during the present survey, due to lack of sampling after suitable rainfall, there are many records of this species from the Burrup Peninsula in the collections of the WA Museum. *C. maini* is very conspicuous following cyclonic rains, and breeding occurs in temporary ponds and pools, often in rockpile areas. Very common and widespread on the mainland, it is also known to occur on Angel and Dolphin Islands, in the Dampier Archipelago.

##### *Litoria caerulea* (White 1790)

This species is not yet known to occur on the Burrup Peninsula. However, it is possible that it is,

or will become, naturalised in Dampier town site gardens. Numerous individuals have been reported from plant nurseries at Wickham and Karratha, and from domestic gardens. Parks and gardens in Dampier are well watered, and supplied with horticultural imports from Broome and Darwin. This species is occasionally transported to the Pilbara with horticultural materials trucked down from the north.

##### *Litoria rubella* (Gray 1842)

Site 16 (1). A single *L. rubella* was captured during this survey. However, the species is common within the town of Dampier, and around artificial water sources associated with industrial development on the Burrup. The WA Museum contains several specimens from the Burrup Peninsula, and from Dolphin Island (Dampier Archipelago).

#### MYOBATRACHIDAE

##### *Notaden nichollsi* Parker 1940

No *Notaden* were recorded during the present survey. However, the WA Museum contains a specimen collected in 1976 from Dampier town site. Searches after Tropical Cyclone Monty, which dropped over 300 mm of rain in early March 2004, did not reveal any *Notaden* at any location on the Burrup Peninsula, including areas near Dampier, Hearson Cove and Withnell Bay. *Cyclorana maini* was very conspicuous. The single *Notaden* record from Dampier is

Table 5. Amphibian species thought to be extant on the Burrup Peninsula (2 species), and those recorded from the Dampier Archipelago (2 species) and nearby mainland (5 species). A single record of *Notaden nichollsi* from the Burrup is considered doubtful. Superscript 1 indicates species is introduced.

Habitat types	Supra-tidal flats	Coastal sands	Orange sand sheet
Site numbers	3	0, 1, 2, 9, 17	15, 19
HYLIDAE			
<i>Cyclorana australis</i>			
<i>Cyclorana maini</i>	+	+	+
<i>Litoria caerulea</i> <sup>1</sup>			
<i>Litoria rubella</i>			
MYOBATRACHIDAE			
<i>Notaden nichollsi</i>			

considered doubtful. This species is not known from any islands of the Dampier Archipelago. However, it does occur on the adjacent mainland, with records from both Karratha Station and Cleaverville.

### DISCUSSION

The Burrup Peninsula (15,000 ha), with 14 native terrestrial mammal species and 63 reptiles and amphibians, has a more diverse terrestrial vertebrate fauna than either Barrow Island (much larger, at 23,300 ha; 11 terrestrial mammals and 43 reptiles and amphibians), or of the entire Dampier Archipelago (7 mammals and 42 reptile species; data from 19 islands, ranging from 1 ha to 3290 ha, total combined area of 14,674 ha, CALM 1990, and recent collections). This relative richness in species is no doubt due to the large size of the

Burrup, its proximity to the mainland, and the diversity of habitats found there. A total of 16 non-flying native mammal species, and 74 reptiles and amphibians are known from mainland areas adjacent to the Burrup.

Of the 17 species of non-volant mammal now believed to be living on the Burrup (including three introduced species; *Mus musculus*, *Felis catus* and *Vulpes vulpes*), four species were not recorded by the DEC survey described here (*Dasyurus hallucatus*, *Hydromys chrysogaster*, *Rattus rattus* and *Zygomys argurus*). The status of *D. hallucatus* and *H. chrysogaster* on the Burrup remains uncertain, and no trapping was undertaken in habitats likely to support high densities of *R. rattus* (Dampier town site, and the various ports and environs). The absence of *Z. argurus* is probably explained by inadequate trapping effort in



Low stony colluvial 5, 7, 11, 12, 20	High stony colluvial 4, 10, 14	Rockpile hills 6, 8, 13, 16	Burrup, other studies	Dampier Archipelago	Nearby Mainland
+		+	+	+	+
		+	+	+	+
			?		+

rockpile habitats, although densities of this species may vary dramatically over time.

Three species of mammal (*Pseudomys chapmani*, *Rattus tunneyi* and *Canis lupus dingo*) are believed to be locally extinct on the Burrup Peninsula, although the timing of these events is unclear. The mounds of *P. chapmani* on the Burrup are low and flat, and show no sign of the topography typical of active mounds. The period of time required for the total erosion of all mound topography is unknown. While the previous presence of *R. tunneyi* is not confirmed through subfossil or any other evidence, it is likely that it disappeared from the Burrup at around the same time that it disappeared from the adjacent mainland.

Two species of mammal are known to occur on the mainland adjacent, but not on the Burrup in recent times. Dingos were

probably exterminated from the Burrup during the early days of pastoral land use (second half of the 1800's), but they may have been resident on the island prior to that time only in company with Aboriginal people. *Pseudantechinus woolleyae* may have once been present on the Burrup and islands, but there is no evidence of this.

An additional species of mammal may have become extinct from the Pilbara since European settlement. The type locality of *Mesembriomys macrurus* (Golden-backed Tree-rat), collected in 1875, is given as Mermaid Strait near Roebourne (McKenzie and Kerle 1995). This species has not been recorded from the area since, and is now known only from the tropical north.

The persistence of *Petrogale rothschildi* on the Burrup Peninsula is likely to be dependent in the long term on control of Red Fox numbers;

without a continuing baiting campaign, Red Fox numbers will increase, and reinvasion of Dolphin Island will occur. While *P. rothschildi* have been sighted as far south as King Bay and Watering Cove, the densities of wallaby are much lower than those on nearby Dolphin Island. There appears to be steady recruitment of Red Fox from the south, into the baited area. The scarcity of rock wallabies observed on the northern Burrup may be attributable to the continuing, low frequency incidence of Red Fox in that area.

This paper does not address the marine reptiles of the area. Sea snakes in particular, although commonly seen, are poorly collected from Pilbara waters, and several of the true sea snakes will occasionally occur in the inter-tidal habitats of the Burrup Peninsula. Similarly, *Fordonia leucobalia* (a 'mangrove snake') is sure to occur in mangrove habitats of the Burrup and mainland, although no collections yet confirm this.

The terrestrial herpetofauna of the study area is also imperfectly known. The herpetofauna of the Burrup is largely a sub-set of that of the mainland nearby, and none of the fauna lists given here are likely to be complete. For example, *Oedura marmorata*, *Ctenotus leonhardii* and other reptiles are not known from the mainland near Karratha, where they may in the future be recorded. Both the Burrup and

the Dampier Archipelago will no doubt yield further species in time. Three introduced herpetofauna species (*Hemidactylus frenatus*, *Ramphotyphlops braminus* and *Litoria caerulea*) are known from Karratha, and are almost certainly present in Dampier well, although it is unlikely that any of these species will ever naturalise in natural Burrup habitats.

It should be noted that the Salt-water crocodile (*Crocodylus porosus*) is now resident in coastal habitats of the west Pilbara, including the inshore waters of the Dampier Archipelago. Its occurrence on the Burrup is likely to be transitory, except in the large areas of mangal near the south western extremity.

#### ACKNOWLEDGEMENTS

The author thanks his colleagues of the Department of Environment and Conservation in Karratha, particularly Stephen van Leeuwen, Michael Hughes, John Angus, Bob Bromilow, Geoff Kregor, Jeff Richardson and Chris Muller, for assistance in all aspects of our work on the Burrup Peninsular over many years. Brad Maryan, Russell Browne-Cooper and Bruce George undertook extensive and valuable field collections. Mark Cowan, Mike Craig, Norah Cooper and Brad Maryan provided comment on the draft manuscript, and Norah and Brad facilitated access to specimen data held in the collections of

the WA Museum, and George Kendrick and Michael Tutt generously provided access to their field notes. I also wish to acknowledge several consultant biologists who generously shared their knowledge and data from the area, including Kyle Armstrong, Mike Bamford, Roy Teale and Mike Craig. Michi Maier prepared the maps. Finally, my thanks go to members of the 1997 Pilbara Green Corps crew, and to the Nickol Bay Naturalists Club, for their assistance in the field.

#### REFERENCES

- ADAMS, M and COOPER, N.K. 2005 A molecular genetic and morphological appraisal of a distinctive form of the sandy inland mouse, *Pseudomys hermannsburgensis*. *Western Australian Naturalist* 24: 216–231
- ANSTEE, S.D. 1996. Use of external mound structures as indicators of the presence of Pebble-mound Mouse, *Pseudomys chapmani*, in mound systems. *Wildlife Research*, 23, 429–34.
- APLIN, K.P., COOPER, N.K., HOW, R.A., HUTCHINS, J.B., JOHNSTONE, R. E. and SMITH, L.A. 2001. Checklist of the vertebrates of Western Australia. *Records of the Western Australian Museum, Suppl. No. 63*.
- APLIN, K.P. and SMITH, L.A. 2001. Checklist of the frogs and reptiles of Western Australia. *Records of the Western Australian Museum, Suppl. No. 63*; pp51–74.
- BIGGS, E.R. 1976. Nickol Bay – Legendre Urban Geology. Sheet 2256 1 and part of Sheet 2257 11. *Western Australian Urban Geology Series. Geological Survey of Western Australia*.
- BLACKET, M.J., ADAMS, M., KRAJEWSKI, C. and WESTERMAN, M. 2000. Genetic variation within the dasyurid marsupial genus *Planigale*. *Australian Journal of Zoology*, 48, 443–459.
- BURBIDGE, A.A. and MORRIS, K.D. 2002. Introduced mammal eradications for nature conservation on Western Australian islands: a review. In *Turning the Tide: the Eradication of Invasive Species: Proceedings of the International Conference on Eradication of Island Invasives*. Pp 64–70, in C.R. Veitch & M.N. Clout (eds), IUCN, Gland. pp. 2004.
- BURBIDGE, A.A. and PRINCE, R.I.T. 1972. The fauna, flora and planned usage of the Dampier Archipelago. *Department of Fisheries and Fauna, Western Australia. Report No. 11*; 1–27.
- BUTLER, W.H. and BUTLER, M.A. 1987. Burrup Peninsula fauna survey, for Woodside Offshore Petroleum. Unpublished report.
- CALM. 1990. Dampier Archipelago Nature Reserves Management Plan, 1990 – 2000. *Management Plan No. 18*. Department of Conservation and Land Management.
- COGGER, H.G. 1996. *Reptiles and amphibians of Australia*. Reed Books Australia.
- COOPER, N.K., ADAMS, M. and

- HOW, R.A. 2001. The identity of *Planigale* on the Burrup Peninsula. Unpublished report, prepared for Sinclair Knight Mertz, on behalf of Burrup Fertilisers.
- DINARA PTY LTD. 1990. Burrup Peninsula Fauna Survey. Unpublished report to Woodside Offshore Petroleum Pty Ltd.
- DINARA PTY LTD. 1993. Burrup Peninsula Fauna Survey. Unpublished report to Woodside Offshore Petroleum Pty Ltd.
- GARA, T.J. 1983. The Aborigines of the Dampier Archipelago. An Ethnohistory of the Yaburara. Unpublished manuscript, Perth WA.
- HICKMAN, A.H. 1997. Dampier, WA. Sheet 2256: *Western Australian Geological Survey, 1:100 000 Geological Series*.
- HOW, R.A., COOPER, N.K. and BANNISTER, J.L. 2001. Checklist of the mammals of Western Australia. *Records of the Western Australian Museum, Suppl. No. 63*; pp91–98.
- JONES, B and BAYNES, A. 1989. Illustrated keys to Australian mammalia to generic level. pp 1075–1171, in *Fauna of Australia, Volume 1B, Mammalia*, D. W. Walton and B. J Richardson (ed's), Australian Biological Resources Study. Australian Government Printing Service, Canberra.
- KENDRICK, G.W. 1961. Field note books, 1961, held in the collections of the WA Museum, Perth.
- MARYAN, B. 2001. The gecko *Hemidactylus frenatus* and Flowerpot blind-snake *Ramphotyphlops braminus* in Western Australia. *Herpetofauna* 31: 26–27.
- MCKENZIE, N. L. and KERLE, J A. 1995. Golden-backed Tree-rat. pp566–568 in: *The mammals of Australia*, R. Strahan (ed.), 1995. Reed Books.
- O'BRIEN PLANNING CONSULTANTS PTY LTD. 1994. Burrup Peninsula Draft land use and management plan. Technical Appendices, for the Burrup Peninsula Management Advisory Board. 1994.
- PEARSON, D. 2003. Giant pythons of the Pilbara. *Landscape* 19(1), pp32 – 39.
- SMITH, L.A. and ADAMS, M. In press. Revision of the *Lerista muelleri* species group (Lacertilia: Scincidae) in Western Australia, with a redescription of *Lerista muelleri* (Fischer, 1881) and the description of nine new species.
- SMITH, L.A., ADAMS, M. and HOW, R.A. 2001. The *Lerista muelleri* complex on the Burrup Peninsula. Unpublished report, prepared for Sinclair Knight Mertz, on behalf of Burrup Fertilisers.
- STORR, G.M., SMITH, L.A. and JOHNSTONE R.E. 1983. *Lizards of Western Australia. Volume II, Dragons and Monitors*. Western Australian Museum, Perth.
- STORR, G.M., SMITH, L.A. and JOHNSTON R.E. 1986. *Snakes of Western Australia*. Western Australian Museum, Perth.
- STORR, G.M., SMITH, L.A. and JOHNSTON R.E. 1990. *Lizards of Western Australia. Volume III,*

- Geckos and Pygopods*. Western Australian Museum, Perth.
- STORR, G.M., SMITH, L.A. and JOHNSTON R.E. 1999. *Lizards of Western Australia. Volume I, Skinks*. Western Australian Museum, Perth.
- STOW, J.P. 1981. *The voyage of the Forlorn Hope*. Adelaide, Sullivan Cove, South Australia.
- STRAHAN, R. (ed.). 1995. *The mammals of Australia*. Australian Museum and Reed Books.
- TINGAY, A. and TINGAY, S.R. 1979. *Vertebrate fauna study of Burrup Peninsula*. Report to Woodside Offshore Petroleum Pty Ltd, North West Shelf Development Project.
- TRIGGS, B. 1996. *Tracks, scats and other traces. A field guide to Australian Mammals*. Oxford University Press.
- TYLER, M.J., SMITH, L.A. and JOHNSTONE, R.E. 1984. *Frogs of Western Australia*. Western Australian Museum, Perth.
- VETH, P., BRADSHAW, E., GARA, T., HALL, N., HAYDOCK, P. and KENDRICK, P. 1993. Burrup Peninsula Aboriginal Heritage Project. A report to the Department of Conservation and land Management, 1993.
- VINNICOMBE, P. 1987. Dampier Archaeological Project. Resource document, survey and salvage of Aboriginal sites, Burrup Peninsula, Western Australia. A report to Woodside Offshore Petroleum Pty Ltd.
- WILSON, S.K. and KNOWLES, D.G. 1988. *Australia's Reptiles*. A photographic reference to the terrestrial reptiles of Australia. Collins, Sydney.
- WOODSIDE OFFSHORE PETROLEUM. 1979. North West Shelf Development Project. Environmental Impact Statement and Environmental Review and Management Programme. Unpublished report to the Commonwealth Government of Australia, and the Government of Western Australia.
- WOODSIDE OFFSHORE PETROLEUM. 1997. Annual Report on environmental investigations and monitoring. Annual environmental report under the ratified North West Gas Development (Woodside) Agreement 1979.
- WOODSIDE OFFSHORE PETROLEUM. 1998. North West Shelf Venture. Additional liquefied Natural Gas (LNG) facilities. Public Environmental Review (WA) and public Environmental Report (Commonwealth).